63d Congress, 2d Session. | HOUSE OF REPRESENTATIVES. | Document No. 661.

OCCOQUAN CREEK, VA.

3

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS ON PRELIMINARY EXAMINATION AND SURVEY OF OCCOQUAN CREEK, VA.

January 27, 1914.—Referred to the Committee on Rivers and Harbors and ordered to be printed, with illustrations.

War Department,
Washington, January 26, 1914.

The Speaker of the House of Representatives.

Sir: I have the honor to transmit herewith a letter from the Acting Chief of Engineers, United States Army, of this date, together with copies of reports from Col. W. C. Langfitt, Corps of Engineers, dated June 13 and December 8, 1913, with maps, on preliminary examination and survey, respectively, of Occoquan Creek, Va., made by him in compliance with the provisions of the river and harbor act approved March 4, 1913.

Very respectfully,

Lindley M. Garrison,
Secretary of War.

War Department,
Office of the Chief of Engineers,
Washington, January 26, 1914.

From: The Chief of Engineers, United States Army.
To: The Secretary of War.
Subject: Preliminary examination and survey of Occoquan Creek, Va.

1. There are submitted herewith, for transmission to Congress, reports dated June 13 and December 8, 1913, with maps, by Col. W. C. Langfitt, Corps of Engineers, on preliminary examination and

survey, respectively, of Occoquan Creek, Va., authorized by the river and harbor act approved March 4, 1913.

2. Occoquan Creek is a tributary of the Potomac River, into which it empties about 22 miles below Washington, D. C. The present project for its improvement, adopted in 1890 and modified in 1907, provides for dredging channels 6 feet deep through the five bars obstructing navigation below the town of Occoquan, including the construction of dikes at the three upper bars. The adopted width of the channels is 100 feet except through the outer bar and the lower 2,000 feet of lower mud bar, where it is 150 feet. The present commerce on the creek amounts to about 50,000 tons per annum with prospect of considerable increase in the future. The district officer states that the craft frequenting the creek are much hampered at times by lack of depth, involving partial loading and delays. He is of opinion that it is advisable for the United States to increase the depth to 8 feet at mean low water, or 6 feet at lowest tides, with widths as contemplated by the existing project, at an estimated cost of $43,000. The division engineer concurs in this opinion.

3. These reports have been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its report herewith, dated December 30, 1913, concurring with the views of the district officer and division engineer.

4. After due consideration of the above-mentioned reports I concur with the views of the district officer, the division engineer, and the Board of Engineers for Rivers and Harbors, and therefore report that the further improvement of Occoquan Creek, Va., is deemed advisable to the extent of providing a channel 8 feet deep at mean low water, 150 feet wide from the mouth to Taylor Point, and 100 feet wide thence to the town of Occoquan, at an estimated cost of $43,000 for first construction and $800 annually for maintenance. The full amount of the estimate should be provided in one appropriation.

Edw. Burr,
Colonel, Corps of Engineers,
Acting Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS ON SURVEY.

[Third indorsement.]

Board of Engineers for Rivers and Harbors,
December 30, 1913.

To the Chief of Engineers, United States Army:

1. Occoquan Creek flows in a general southeasterly direction, about 15 miles, and empties into the Potomac River at a point about 22 miles below Washington, D. C. It is navigable for about 6 miles above its mouth to the wagon bridge at Occoquan.

2. The existing project, adopted September 19, 1890, as modified in 1907, contemplates a channel 6 feet deep and 150 feet wide from the mouth to Taylor Point, and thence 100 feet wide up to the town of Occoquan. The estimated cost of the project is $64,000. Practically all the work required under this project has been completed, and it is stated that there is now a depth of 6 feet at mean low tide. The mean range of tide is about 2 feet.

3. The principal business transacted on the stream is connected with the District of Columbia Workhouse, located on the left bank of the creek, opposite Occoquan. The amount of commerce in 1912 is reported to have been 49,558 tons. The town of Occoquan has a population of about 400, and a tributary population of 1,000 to 1,200, not including the workhouse. The workhouse operates a stone quarry and a brick plant, and it is intended that this institution shall supply a large part of the farm products used by the various district institutions in the city of Washington. The Commissioners of the District of Columbia estimate the prospective commerce at 150,000 tons.

4. A survey has been made, and based upon the results, the district officer presents a plan of improvement which provides for a channel 150 feet wide and 8 feet deep at mean low water from deep water in the Potomac River to Taylor Point, and thence 100 feet wide to Occoquan, at an estimated cost of $43,000. The estimate for maintenance is $800 per annum. He believes the locality worthy of improvement to this extent, and in this view the division engineer concurs.

5. There is no regular steamboat service on this creek, the principal business being conducted by towboats and barges in the handling of heavy materials. The amount of commerce, present and prospective, to be affected by the proposed improvement, appears sufficient to warrant the additional work proposed by the district officer, and therefore the board concurs with him and with the division engineer, and reports that in its opinion it is advisable to enlarge the present project for Occoquan Creek by providing for a channel 150 feet wide and 8 feet deep, from the mouth to Taylor Point, and thence 100 feet wide and 8 feet deep to the town of Occoquan, as proposed by the district officer, at an estimated cost of $43,000 and $800 annually for maintenance. The total amount of the first cost should be made available in one appropriation.

6. In compliance with law, the board reports that there are no questions of terminal facilities, water power, or other subjects so related to the project proposed that they may be coordinated therewith to lessen the cost and compensate the Government for expenditures made in the interests of navigation.

For the board:

Frederic V. Abbot,
Colonel, Corps of Engineers,
Senior Member Present.

PRELIMINARY EXAMINATION OF OCCOQUAN CREEK, VA.

United States Engineer Office,
Washington, D. C., June 13, 1913.

From: The District Engineer Officer.
To: The Chief of Engineers, United States Army
(Through the Division Engineer).
Subject: Report on preliminary examination of Occoquan Creek, Va.

1. In compliance with the provisions of the letter from the Chief of Engineers, dated March 18, 1913, the following report on the preliminary examination of Occoquan Creek, Va., required under act of

Congress, approved March 4, 1913, making appropriation for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes, is submitted.

2. Occoquan Creek is formed by the confluence of the Bull and Broad Runs about 5 miles southeast of Manassas, Va., and flows in a generally southeasterly direction about 15 miles until it empties into the Potomac River about 22 miles below Washington, D. C. Its watershed is rolling or hilly and is about 3,200 square miles in extent. It is at present navigable from the wagon bridge at Occoquan, Va., to its mouth, a distance of about 6 miles.

References to previous examination or survey reports and maps or plans.

Section covered.	Congressional documents.				Annual reports of Chief of Engineers.	
	House or Senate.	No.	Congress.	Session.	Year.	Page.
Occoquan to mouth	Senate executive.	[1] 25	Forty-second	Third	[1] 1873	819–821 825–826
Do	House	[2] 75	Fifty-first	First	[1] 1890	1089–1096
Do					[1] 1897	1322
Do	House	[1] 190	Fifty-ninth	First		

[1] No maps.

[2] Contains maps.

3. The original project for improvement, adopted by river and harbor act of March 3, 1873, was in accordance with plan printed in Senate Document No. 25, Forty-second Congress, third session, and as modified in 1879 provided for dredging channels 100 feet wide and 5 feet deep through the bars below the town of Occoquan and the construction of a dike at Sand Bar, at an estimated cost of $25,000. Four appropriations were made from 1873 to 1878, aggregating $25,000, and in 1880 the improvement was regarded as completed.

4. The existing project for this stream, adopted September 19, 1890, and extended by an act of March 2, 1907, is in accordance with plan printed in House Document No. 75, Fifty-first Congress, first session (which contains maps), as subsequently modified and printed in Annual Report of the Chief of Engineers for 1891, page 1254, and contemplates the dredging of channels 6 feet deep through the five bars obstructing 6-foot navigation below the town of Occoquan, 6 miles above the mouth. These channels are to be 100 feet wide except through the outer bar and the lower 2,000 feet of the bar next above it, where the channel is to be 150 feet wide. Dikes are to be constructed at the upper three bars. The estimated cost of the project as modified is $64,000.

5. All work provided for in the project has been done except dike called for at upper mud bar, the construction of which is not at present necessary. The benefits to navigation derived from this improvement are marked. Tugboats and vessels of 6-foot draft can now enter the creek on mean low tide.

6. The maximum draft that could be carried on June 30, 1912, at mean low water over the shoalest part of the locality under improvement was 6 feet. The mean range of tide is about 2 feet. A navi-

gable depth of 23 feet is available from the mouth of Occoquan Creek to the Atlantic Ocean through the Potomac River and the Chesapeake Bay.

7. The Washington Southern Railroad crosses the creek on a steel truss bridge at Woodbridge, about 4½ miles above its mouth. This bridge is at high elevation and all vessels navigating the creek have no difficulty in passing under it.

8. Occoquan Creek has three ports, the town of Occoquan, Va., the Consolidated Quarry Co. of Virginia, and the District of Columbia workhouse. Its wharves are almost all solid fill timber bulkhead landings, many of them being little more than shore landings.

9. There is no regular steamboat traffic on the Occoquan Creek except the towing service connected with the workhouse. Its landings receive about 517 discharges per year. The amount of commerce in 1912 was 49,558 tons, valued at $140,962.

10. A large part of the loading and unloading is done by hand at the workhouse. Stone is loaded on vessels through wooden chutes. Coal is unloaded by means of a wooden stiff-leg derrick in wooden boxes. Bricks are wheeled directly onto scows with wheelbarrows.

11. Of 10 landings on the Occoquan Creek but two are open to use by all water carriers on equal terms. Both of these are located in the town of Occoquan, Va. Wharfage rates are as follows:

Piles	5 cents or 10 cents each.
Wood	4 cents or 5 cents per cord.
Ties	½ cent each.
Lumber	10 cents per 1,000 feet.

There is no physical connection between the wharves or landings of the creek and any railroad, and no interchange of traffic.

12. A gravel wagon road crosses the creek at Occoquan, Va., and forms a marginal road for the town. The Virginia Quarry Co. and workhouse landings are reached by unimproved wagon roads.

13. All terminals on the Occoquan Creek are either private or Government owned. The greater number of private-owned landings are rented to other persons or corporations. The average rental price is 49 cents per foot of water frontage per year. There is no person or firm regularly engaged in the transfer or delivery business.

14. The Occoquan Falls, located just above the wagon bridge, afford a good water power, which is partially utilized by a flour mill of a capacity of 50 barrels daily. It is said that this water power is now under observation by a New York City syndicate with a view to its development in the interests of the Potomac Electric Power Co., of Washington, D. C. Any improvement of the present navigable section of the stream would not interfere with the development of this water power. On the other hand, if power is secured by the erection of a dam at the foot of the falls the insertion of a lock or flight of locks would extend the navigability of the stream.

15. The town of Occoquan has a population of about 400. A large section of country with a total population of 1,000 to 1,200 persons, not including the workhouse, engaged mainly in farming, lumbering, and quarrying, is tributary to Occoquan Creek. Quite a large quantity of wood, ties, piles, and lumber are shipped from Occoquan. By far the greatest part of the commerce of the creek is in connection with the District of Columbia workhouse, below and across the creek from the town of Occoquan. This institution

operates a stone quarry and a brick plant for supplying materials to the District of Columbia. It has been established for but two years and is not working at anything like its full capacity. In addition to the increased output of the quarry and brick plant, it is intended that this institution shall supply a large proportion of the farm products now used by the various District institutions in this city. The establishment of a reformatory adjacent to the workhouse has recently been authorized, and it is predicted by the Commissioners of the District of Columbia that the commerce of these two institutions will amount to 150,000 tons per year in a very few years.

16. A public hearing was held at Occoquan on April 25, 1913, a report of which is submitted herewith. All persons present at the hearing seemed to be in favor of the improvement additional to that already made. The dimension of the channel desired varies with the persons or interests desiring the improvement from 8 to 10 or more feet in depth and from 150 to 200 feet in width.

17. There are submitted herewith a letter from the Commissioners of the District of Columbia and from the Consolidated Quarry Co., of Virginia, bearing upon the proposed improvement.

18. In view of the size of the present commerce of Occoquan Creek and of that which may reasonably be expected to follow the creation of a suitable channel, I am of the opinion that Occoquan Creek is worthy of further improvement by the General Government to such an extent as seems warranted by the cost involved.

19. A survey upon which to base estimates of cost and a new project is therefore recommended.

20. A sketch map [1] of this stream, together with locality sketch, accompanies this report.

W. C. LANGFITT,
Lieutenant Colonel, Corps of Engineers.

[First indorsement.]

THE DIVISION ENGINEER, EASTERN DIVISION,
New York City, June 18, 1913.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

Concurring in the opinion and recommendation of the district engineer.

W. M. BLACK,
Colonel, Corps of Engineers.

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
July 1, 1913.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

For reasons stated herein the board concurs with the district officer and the division engineer in recommending a survey in order to determine the extent and advisability of the improvement.

For the board:

LANSING H. BEACH,
Colonel, Corps of Engineers,
Senior Member Present.

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[1] Not printed.

Report of Public Hearing.

United States Engineer Office,
Washington, D. C., May 3, 1913.

From: Lieut. Col. W. C. Langfitt, Corps of Engineers.
To: The Chief of Engineers, United States Army
(Through the Division Engineer).
Subject: Report of public hearing held at Occoquan, Va., April 25, 1913.

NOTICE OF HEARING.

1. The river and harbor bill, approved March 4, 1913, provides for a preliminary examination, and, if found advisable, a survey of Occoquan Creek, Va., with a view to its improvement for navigation. In connection with the preliminary examination a public hearing will be held at the public-school building in the town of Occoquan, Va., at 11 a. m., April 25, 1913.

All persons interested are invited to attend and submit their views for or against the improvement.

Oral statements will be heard, but important data or statements should be submitted in writing in order that they may become a part of the records to be submitted to the Secretary of War for consideration in connection with the decision of the case.

Any interested person who will be unable to attend the hearing is requested to submit his views in writing to this office prior to April 25, 1913.

Data and information is especially desired in regard to the following:

(*a*) Amount of present commerce.

(*b*) Amount of commerce which may reasonably be expected to develop as the result of suitable improvement.

(*c*) Character and scope of improvement desired or necessary, particularly as to depth and width of channel required for the present or prospective commerce.

W. C. Langfitt,
Lieutenant Colonel, Corps of Engineers.

2. In accordance with the above notice, a public hearing was held at Occoquan, Va., April 25, 1913.

3. The following persons were present at the hearing:

Lieut. Col. W. C. Langfitt, Corps of Engineers.
Capt. Jarvis J. Bain, Corps of Engineers.
Mr. W. H. Whittaker, superintendent District of Columbia workhouse.
W. S. Lynn, Occoquan, Va.
Dr. T. W. Hornbacker, Occoquan, Va.
H. F. Slack, Occoquan, Va.
G. W. Hunter, Occoquan, Va.
N. C. Davis, Swetnam, Va.
John A. Sander, Occoquan, Va.
Dr. C. Lee Starkweather, Occoquan, Va.
Tyson Janney, Occoquan, Va.
S. N. Carter, Occoquan, Va.
L. Ledman, mayor, Occoquan, Va.
R. C. Hammill, Woodbridge, Va.

4. The hearing was called to order at 11.15 a. m. by Lieut. Col. Langfitt, who read the public notice and stated the purpose of the meeting. At the request of Col. Langfitt, the Hon. L. Ledman, mayor of Occoquan, became chairman and presided over the meeting. Mr. Ledman called on the persons present by name to express their views upon the proposed improvement.

5. Mr. Whittaker stated that data concerning the District of Columbia workhouse had been sent to the District Commissioners for transmission to Col. Langfitt.

6. Mr. Hunter said that he personally shipped 6,000 railroad ties last year, and has now 4,000 on hand awaiting shipment. These ties are shipped to Philadelphia in barges that are only half loaded on account of the shallowness of the stream. If there were 10 feet of water, barges could be entirely loaded and shipped to Philadelphia. The channel should not be less than 150 feet wide and would be better 200 feet wide. He shipped very little cordwood last year; probably about 100 cords. If there was plenty of water, he estimated that 6,000 or 7,000 cords would be shipped from Occoquan each year. Mr. Hunter received about $150 worth of imports by river last year, and $5,000 or $6,000 worth by wagon from the nearest railroad. If the creek were improved, practically all of this would come by water.

7. Mr. W. S. Lynn announced that he had prepared a written statement and forwarded it to Col. Langfitt through Mr. Whittaker. He expects a regular line of boats if improvements are made. If none of the existing boat companies would see fit to run vessels to Occoquan, then the people of that town would organize a company and buy a boat for that purpose. If there were 9 or 10 feet of water, the Chesapeake Bay tugs could come to Occoquan and the river commerce would unquestionably double. The people of this vicinity have now only one market, the city of Washington. The large barges are now required to anchor in the Potomac River awaiting their cargo to be lightered to them, and 5 cents per tie is paid as lighterage fee.

8. Mr. Whittaker predicted that 500 per cent increase of traffic would follow suitable improvement.

9. Mr. Davis said that he operates a country store several miles from Occoquan, in Fairfax County. He now receives his goods by rail. Mr. Davis said that the products of his vicinity could not be sold because they had to ship by rail and, therefore, could not compete with other shippers who have access to water transportation. He predicted that suitable improvement of Occoquan Creek would lower freight rates 50 per cent. It would start right off by eliminating the 5 cents lighterage charge on each railroad tie. Occoquan is 7 miles from the Potomac River, and at this point the Potomac Channel follows the Maryland shore, so that the people of his vicinity would receive and ship freight by way of Occoquan. The Potomac Electric Power Co. is talking of developing the Occoquan water power. Their plans include a dam, which would form a lake covering 37,000 acres. This dam would be provided with locks and thus extend navigation up as far as the Southern Railroad.

10. Mr. Janney stated that the power of the Occoquan River is now owned by a New York syndicate known as the Occoquan Co. They are now gauging the stream with a view of making a large development. Mr. Janney operates the flour mill at Occoquan. He now receives wheat and ships flour by rail, but would use water transportation if available, as all wagon hauling would be eliminated in that way. Some years ago, when the channel was better, all shipping of the mill, both in and out, was done by water. Boats used to come from Alexandria, bringing in wheat and taking out flour.

11. Mr. Whittaker asked Mr. Janney what would be the percentage of increase in the commerce of the stream if the channel were made 10 feet deep and 150 feet wide. Mr. Janney replied 400 per cent. Continuing, Mr. Janney stated that 50 barrels per day is the present capacity of his flour mill, and that it is run to its full capacity six months in the year. Transportation would develop truck farming, and much wheat would be shipped in. At present he has to haul his wheat 3 miles from the railroad by wagon, and haul his flour back over the same road.

12. Mr. Slack mentioned the rock quarries opposite Occoquan, and stated that transportation would aid in the development of these quarries.

13. Mr. Whittaker stated that excursionists would flock to that vicinity if the improvement was made; that fishing is fine. If the channel was 10 feet deep and 200 feet wide, a new hotel would be built in Occoquan, and that the town would grow.

14. Mr. Hunter said that Washington excursionists used to come when the channel was better.

15. Mr. Whittaker stated that the District of Columbia might dredge out sand and gravel, thus cheapening excavation to the Government.

16. Capt. Bain asked if local interests were willing to cooperate with the United States financially in making the improvement. Mr. Whittaker replied that the District of Columbia dredging sand would be cooperation.

17. Requests were made for additional expressions of opinion, but as none were made, the meeting was adjourned at 11.55 a. m.

JARVIS J. BAIN,
Captain, Corps of Engineers.

LETTER OF THE BOARD OF COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

OFFICE OF COMMISSIONERS OF THE DISTRICT OF COLUMBIA,
Washington, April 24, 1913.

COLONEL: Referring to the notice of public hearing to be held at the public-school building in the town of Occoquan, Va., at 11 a. m. April 25, 1913, regarding the improvement of navigation in Occoquan Creek, Va., and to the invitation therein, that views of parties interested be submitted in writing, the Commissioners of the

District of Columbia, in behalf of the District of Columbia Workhouse at Occoquan, Va., have the honor to submit the following data and information:

(*a*) *Amount of present commerce.*—The workhouse of the District of Columbia is located on the left bank of the Occoquan Creek, about a mile above the railroad bridge, and has a frontage on the creek of about 2,500 feet. This institution operates a stone quarry and a brick plant for supplying materials to the District of Columbia. The commerce from the workhouse to the District of Columbia during the past year is estimated at 60,000 tons.

(*b*) *Amount of commerce which may reasonably be expected to develop as the result of suitable improvement.*—This institution has been established for but two years and is not working at anything like its full capacity. In addition to the increased output of the quarry and brick plant, it is expected that this institution will supply a large proportion of the farm products now used by the various District institutions in the city. The establishment of a reformatory adjacent to the existing institution has recently been authorized and it is believed that the commerce which may reasonably be expected from these two institutions within the next few years will be not less than 150,000 tons per year.

(*c*) *Character and scope of improvement desired or necessary, particularly as to depth nd width of channel required for the present or prospective commerce.*—It is believed that provision should be made for a channel width up to the workhouse site of about 200 eet, with minimum depth at mean low water of 9 feet.

Very respectfully,

John A. Johnstone,
Acting President Board of Commissioners of District of Columbia.

Lieut. Col. W. C. Langfitt,
Corps of Engineers.

Letter of the Consolidated Quarry Co. of Virginia.

Consolidated Quarry Co. of Virginia,
Washington, D. C., May 29, 1913.

Dear Sir: This company is the owner of the quarry property at Occoquan, Va., on the north side of Occoquan Creek, opposite the town of Occoquan, and it has lately been under lease to the Washington Stone Co., and that company has had considerble trouble in shipping the stone, owing to the depth of water at the wall. We are atisfied that quite a large amount of stone could be taken out of the quarry provided he depth of water was increased to say 10 feet average. There are quite a large number of prospective orders for stone for riprap and other purposes, and our quarry would be in position to furnish the stone, provided facilities could be furnished for hipping it in large quantities. The quarry is in fine condition now, and we could hip at least 100,000 cubic yards of stone in a year if the facilities were better.

We trust it may be your pleasure to recommend the increase of depth of water by redging, as indicated above.

Very truly, yours,

J. C. Pratt, *Treasurer.*

Col. William C. Langfitt,
Corps of Engineers.

SURVEY OF OCCOQUAN CREEK, VA.

United States Engineer Office,
Washington, D. C., December 8, 1913.

rom: The District Engineer Officer.
o: The Chief of Engineers, United States Army
(Through the Division Engineer).
ubject: Survey of Occoquan Creek, Va.

1. In compliance with letter of the Chief of Engineers, dated July , 1913, a survey of Occoquan Creek, with a view to the preparation f a project of improvement and estimate of cost thereof, has been ade.

2. Report on preliminary examination authorized in act of Congress approved March 4, 1913, was submitted under date of June 13, 1913, to which reference is made for description of locality, present conditions, commerce involved, and other pertinent facts.

3. Results of the survey are shown on the map herewith in four sheets. From a study of the detailed sheets it was concluded that a project calling for more than 8 feet at mean low water, giving approximately 6 feet at lowest tides (lower low water), would involve excessive excavation. Accordingly the following estimates are based on the depth mentioned, 8 feet at mean low water. For convenience in estimating, the creek has been divided into three sections, as follows: Section I, from deep water in Potomac River to Taylor Point; Section II, from Taylor Point to railroad bridge; and, Section III, from the railroad bridge to Occoquan.

4. The present project is for a channel 6 feet in depth at mean low water and 150 feet in width over Section I, and of the same depth, but 100 feet in width over Sections II and III.

5. Retaining the same widths as in the existing project, the amounts to be excavated to obtain a channel 8 feet in depth at mean low water, or 6 feet at lowest tides, in the three sections, are as follows:

	Cubic yards.
Section I, channel 150 by 8 feet	193, 000
Section II, channel 100 by 8 feet	68, 000
Section III, channel 100 by 8 feet	20, 000
Total	281, 000

6. In Section I the material is mud, easily excavated, except that the material between station C21 and station C30 is sand and gravel, amounting to about 6,750 cubic yards. In Section II the material is mud, easily excavated, except that between station A21 and station 108 gravel, with some sand, amounting to about 4,500 cubic yards, is found. In Section III, the material is sand with some gravel.

7. All this work can be done by hydraulic process and the excavated material can be deposited behind existing dikes upon adjacent flats or overboard at 500 feet from the dredged channel. It is believed this work can be done for 14 cents per cubic yard. The cost will therefore be—

281,000 cubic yards, at 14 cents	$39, 350
Engineering, incidentals, etc., 10 per cent (approximately)	3, 900
Total	43, 250

Or, in round numbers, $43,000. The estimated cost of maintenance is $800 per annum on an average.

8. The present and prospective commerce on the creek are fully given in the report of preliminary examination above referred to. The present commerce is about 50,000 tons per annum. On account of the rapid development proposed by the District government of their stone, brick, and other industries at the workhouse, the Commissioners of the District estimate a tonnage of 150,000 in a few years from their operations alone. There are probabilities of other increases also, as indicated in the preliminary examination report. The present craft frequenting the creek are also much hampered at times by lack of depth, involving partial loading and delays.

9. In view of all the circumstances of the case, I am of the opinion that the United States would be fully justified in adopting the new project herein outlined, that is, for a channel 150 feet wide and 8 feet deep at mean low water (6 feet at extreme low water), from the Potomac River to Taylor Point, and 100 feet in width and of the same depth from Taylor Point to Occoquan, at an estimated cost of $43,000, with $800 estimated annual maintenance, and I accordingly so recommend.

10. There are no questions of water power, drainage, or other subjects that can be coordinated with the work of improvement, and no additional facts have been developed beyond those necessary for the preparation of estimate of cost of suitable project.

11. If the project herein recommended be adopted, the whole amount should be made available in one appropriation.

W. C. LANGFITT,
Colonel, Corps of Engineers.

[First indorsement.]

OFFICE OF DIVISION ENGINEER, EASTERN DIVISION,
New York City, December 10, 1913.

To the CHIEF OF ENGINEERS:

Concurring in the views and recommendation of the district officer.

W. M. BLACK,
Colonel, Corps of Engineers.

[For report of the Board of Engineers for Rivers and Harbors on survey, see page 2.]

O

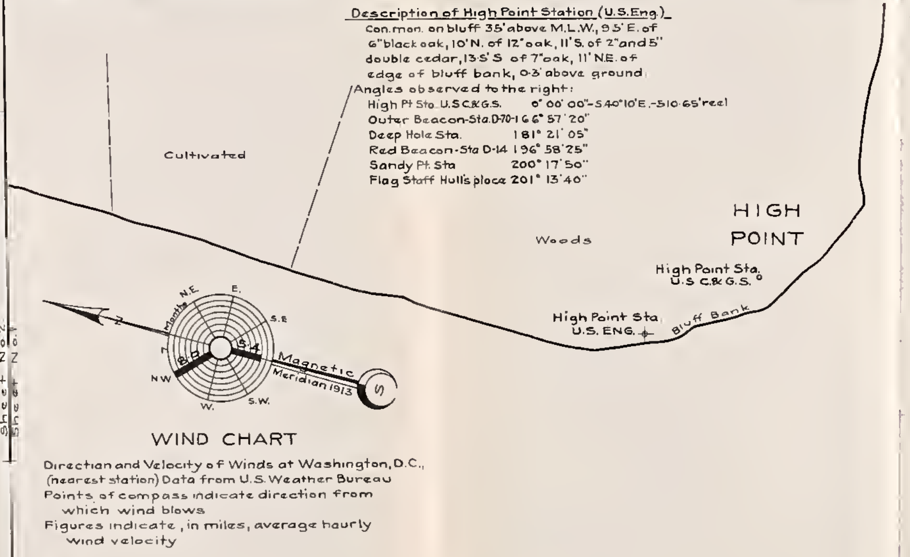
SHEET Nº 1.
OF 4 SHEETS

Description of High Point Station (U.S.Eng.)
Con.mon. on bluff 35' above M.L.W., 9.5' E. of 6" black oak, 10' N. of 12" oak, 11' S. of 2" and 5" double cedar, 13.5' S of 7" oak, 11' N.E. of edge of bluff bank, 0.3' above ground
Angles observed to the right:

High Pt Sta. U.S.C.&G.S.	0° 00' 00" - S 40° 10' E. - 510.65' reel
Outer Beacon-Sta.D-70-1	6 6° 57' 20"
Deep Hole Sta.	181° 21' 05"
Red Beacon-Sta D-14	196° 58' 25"
Sandy Pt. Sta	200° 17' 50"
Flag Staff Hull's place	201° 13' 40"

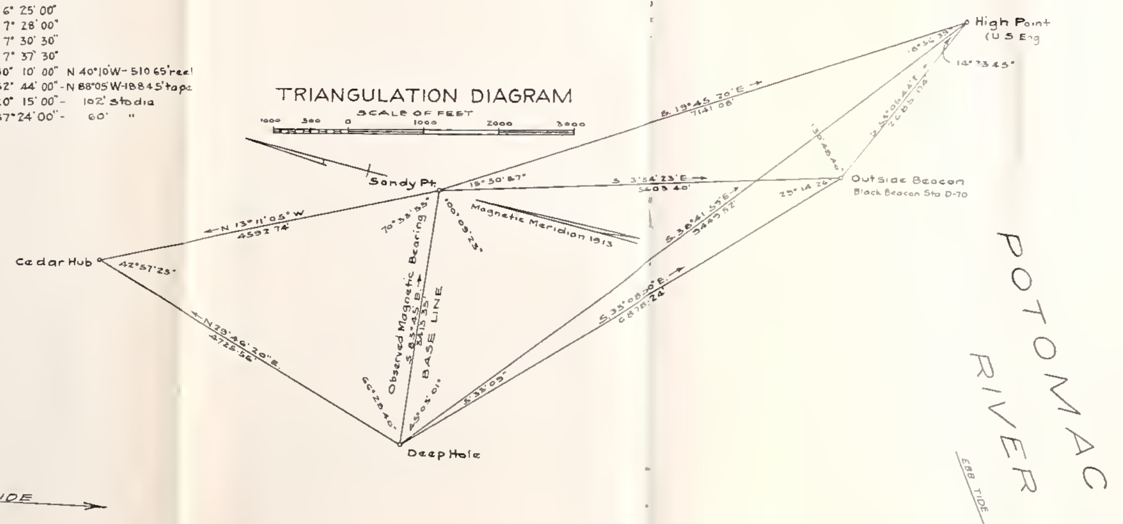
Description of High Point Station (U.S. C.&G.S.)
Station is on extreme edge of bluff. Con.mon. has been removed, only signal tripod remains
Angles observed to the right:

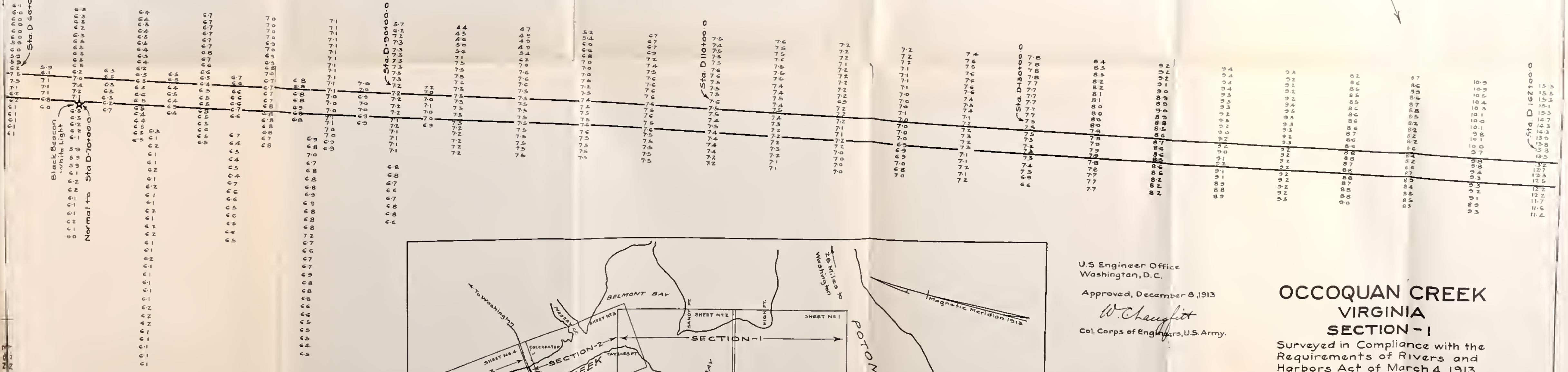
Flag staff on bombproof, Indian Head	0° 00' 00" - S 40° 20' E
℄ Water tower (White) " "	6° 25' 00"
℄ North Stack (Black) " "	7° 28' 00"
℄ Middle " " " "	7° 30' 30"
℄ South " " " "	7° 37' 30"
High Point Station (U S Eng.)	180° 10' 00" N 40° 10' W - 510.65' reel
Hydrographic Sta. D-90+00.0	132° 44' 00" - N 88° 05' W - 188.45' tape
Double Black Oak	320° 15' 00" - 102' stadia
1.3' Hickory tree on brow of hill	337° 24' 00" - 60' "

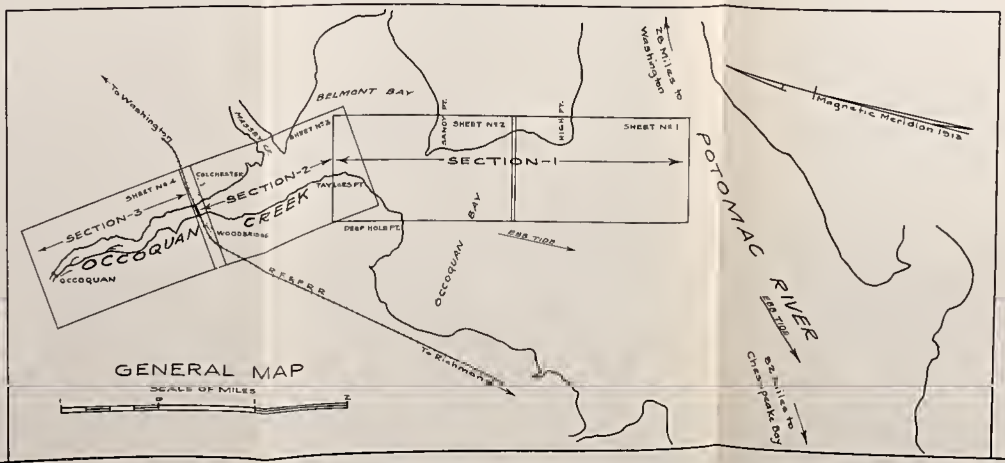


WIND CHART

Direction and Velocity of Winds at Washington, D.C., (nearest station) Data from U.S. Weather Bureau
Points of compass indicate direction from which wind blows
Figures indicate, in miles, average hourly wind velocity







U.S Engineer Office
Washington, D.C.

Approved, December 8, 1913
W. C. Langfitt
Col. Corps of Engineers, U.S. Army.

OCCOQUAN CREEK
VIRGINIA
SECTION - 1

Surveyed in Compliance with the Requirements of Rivers and Harbors Act of March 4, 1913.
August 25 to Sept. 13, 1913.

SCALE OF FEET
100 0 500 1000

NOTES:
Concrete monuments (abbreviated Con.mon.) used in this locality are enclosed by 8" terra cotta pipe with 1/4" brass pipe center point.
Charater of bottom within channel lines to 9 ft. depth in Section 1 - Mud, except between Sta. C-21 and Sta. C-30 which is sand and gravel.

Soundings are in feet and tenths and indicate depth at mean low water

High water shore line	▬
Marsh line	┈
Channel lines	═
9 Foot contour	╌
Concrete monuments	✛
Mean range of tide	1.8

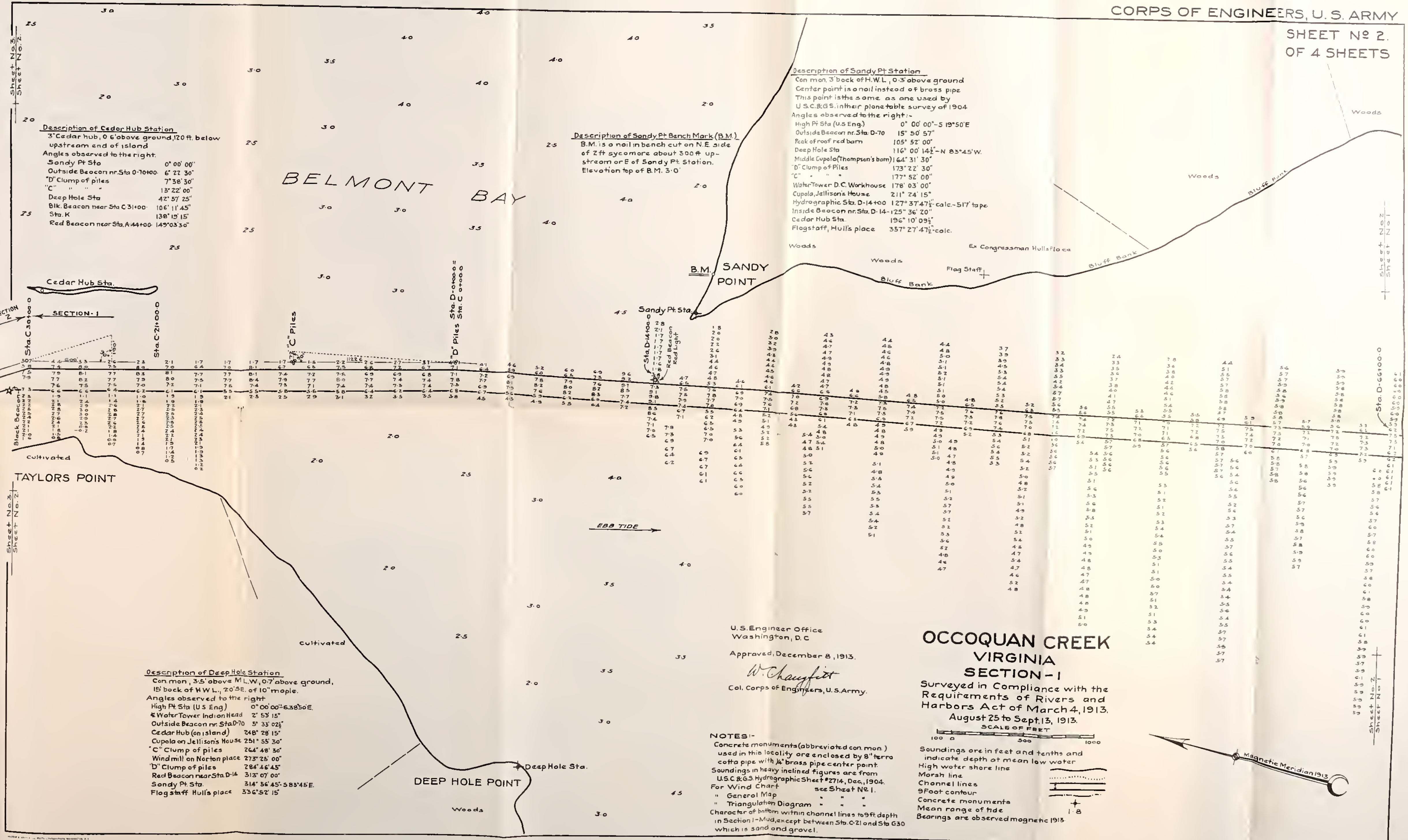
Bearings are observed magnetic 1913.

WAR DEPARTMENT

WAR DEPARTMENT.

CORPS OF ENGINEERS, U.S. ARMY

SHEET No 2.
OF 4 SHEETS



OCCOQUAN CREEK
VIRGINIA
SECTION-1

Surveyed in Compliance with the Requirements of Rivers and Harbors Act of March 4, 1913.
August 25 to Sept. 13, 1913.

SCALE OF FEET
100 0 500 1000

U.S. Engineer Office
Washington, D.C.

Approved, December 8, 1913.

W. Chaufitt
Col. Corps of Engineers, U.S. Army.

Description of Cedar Hub Station

3" Cedar hub, 0 6' above ground, 120 ft. below upstream end of island

Angles observed to the right.

Sandy Pt Sta	0° 00' 00"
Outside Beacon nr. Sta 0-70+00	6° 22' 30"
"D" Clump of piles	7° 38' 30"
"C" " " "	13° 22' 00"
Deep Hole Sta	42° 57' 25"
Blk. Beacon near Sta C 31+00	106° 11' 45"
Sta. K	138° 19' 15"
Red Beacon near Sta. A 44+00	149° 03' 30"

Description of Sandy Pt Bench Mark (B.M.)

B.M. is a nail in bench cut on N.E. side of 2 ft sycomore about 300 ft up-stream or E of Sandy Pt. Station. Elevation top of B.M. 3·0'

Description of Sandy Pt Station

Con mon, 3' back of H.W.L., 0·3' above ground
Center point is a nail instead of brass pipe
This point is the same as one used by U.S.C.&G.S. in their plane table survey of 1904

Angles observed to the right:-

High Pt Sta (U.S Eng.)	0° 00' 00"-S 19°50'E
Outside Beacon nr. Sta. D-70	15° 50' 57"
Peak of roof red barn	105° 52' 00"
Deep Hole Sta	116° 00' 14½"-N 83°45'W.
Middle Cupola (Thompson's barn)	164° 31' 30"
"D" Clump of Piles	173° 22' 30"
"C" " " "	177° 52' 00"
Water Tower D.C. Workhouse	178° 03' 00"
Cupola, Jellison's House	211° 24' 15"
Hydrographic Sta. D-14+00	127° 37' 47½"-calc.-517' tape
Inside Beacon nr. Sta. D-14-	125° 36' 20"
Cedar Hub Sta.	196° 10' 09½"
Flagstaff, Hull's place	357° 27' 47½"-calc.

Description of Deep Hole Station

Con. mon, 3·5' above M.L.W., 0·7' above ground, 15' back of H.W.L., 20' S.E. of 10" maple.

Angles observed to the right

High Pt. Sta (U.S Eng)	0° 00' 00"-S 38°50'E.
℄ Water Tower Indian Head	2° 53' 15"
Outside Beacon nr. Sta D-70	5° 33' 02½"
Cedar Hub (on island)	248° 28' 15"
Cupola on Jellison's House	251° 55' 30"
"C" Clump of piles	264° 48' 30"
Windmill on Norton place	273° 25' 00"
"D" Clump of piles	284° 46' 45"
Red Beacon near Sta D-14	313° 07' 00"
Sandy Pt. Sta.	314° 56' 45"-S 83°45'E.
Flagstaff Hull's place	336° 52' 15"

NOTES:-

Concrete monuments (abbreviated con. mon.) used in this locality are enclosed by 8" terra cotta pipe with ¼" brass pipe center point.
Soundings in heavy inclined figures are from U.S.C.&G.S. Hydrographic Sheet #2714, Dec., 1904.
For Wind Chart see Sheet No 1.
" General Map " " "
" Triangulation Diagram " " "
Character of bottom within channel lines to 9 ft. depth in Section 1-Mud, except between Sta. C-21 and Sta C-30 which is sand and gravel.

Soundings are in feet and tenths and indicate depth at mean low water

High water shore line	——
Marsh line	······
Channel lines	═
9 Foot contour	—·—
Concrete monuments	✦
Mean range of tide	1·8

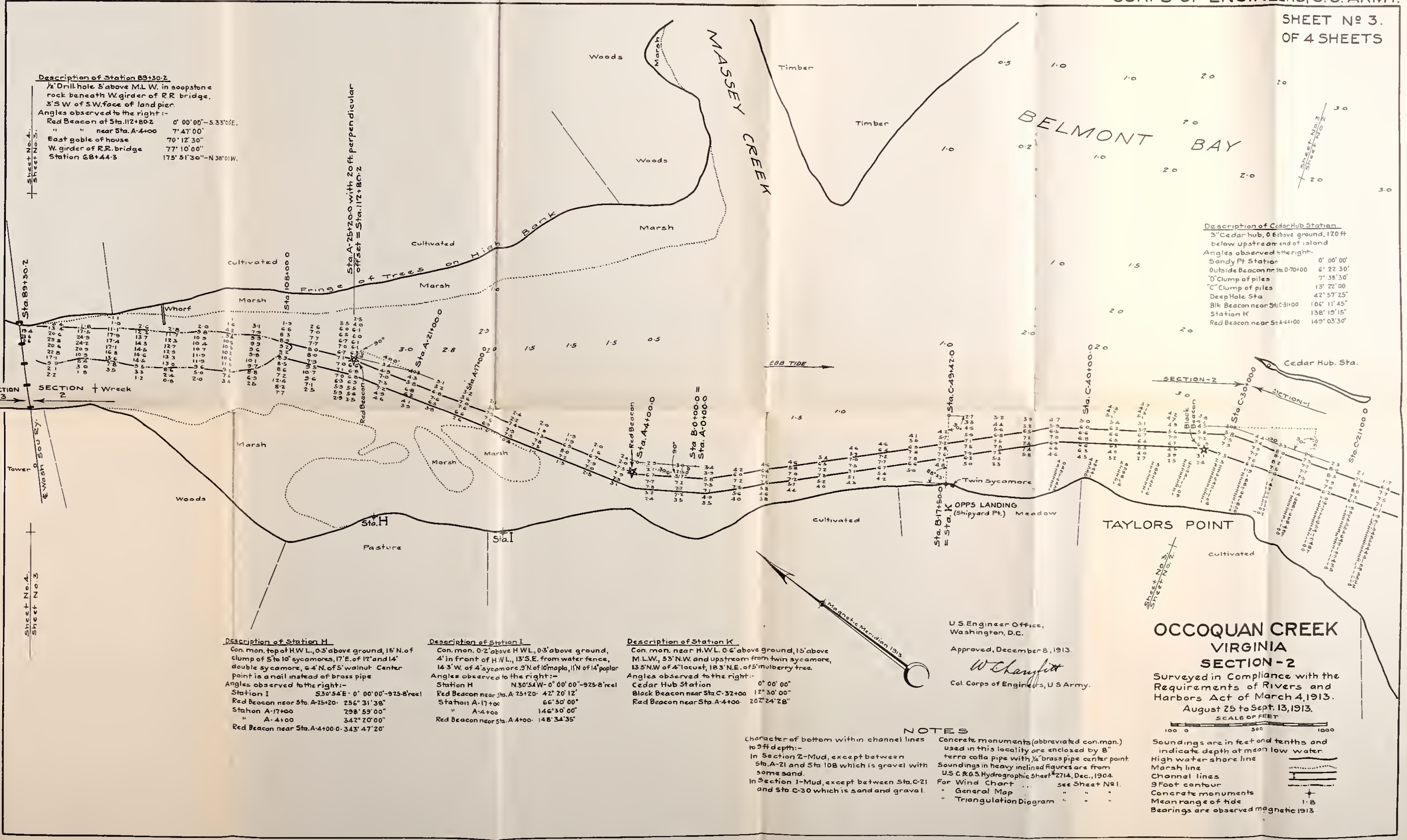
Bearings are observed magnetic 1913

WAR DEPARTMENT

WAR DEPARTMENT.

CORPS OF ENGINEERS, U. S. ARMY.

SHEET No 3.
OF 4 SHEETS



Description of Station 89+30.2

½" Drill-hole 5' above M.L.W. in soapstone rock beneath W. girder of R.R. bridge. 3' S.W. of S.W. face of land pier.

Angles observed to the right:-

Red Beacon at Sta. 112+80.2	0° 00' 00"—S. 33° 00' E.
" " near Sta. A-4+00	7° 47' 00"
East gable of house	70° 12' 30"
W. girder of R.R. bridge	77° 10' 00"
Station 68+44.3	175° 51' 30"—N 38° 00' W.

Description of Cedar Hub Station

3" Cedar hub, 0.6' above ground, 120 ft below upstream end of island

Angles observed to the right:-

Sandy Pt Station	0° 00' 00"
Outside Beacon nr. Sta. D-70+00	6° 22' 30"
"D" Clump of piles	7° 38' 30"
"C" Clump of piles	13° 22' 00"
Deep Hole Sta	42° 57' 25"
Blk Beacon near Sta. C-31+00	106° 11' 45"
Station K	138° 19' 15"
Red Beacon near Sta. A-44+00	149° 03' 30"

Description of Station H

Con. mon. top of H.W.L., 0.3' above ground, 15' N. of clump of 5" to 10" sycamores, 17' E. of 12" and 14" double sycamore, 6.4' N. of 5" walnut. Center point is a nail instead of brass pipe

Angles observed to the right:-

Station I	S.30° 54' E. - 0° 00' 00"—925.8' reel
Red Beacon near Sta. A-25+20.	256° 31' 38"
Station A-17+00	298° 59' 00"
" A-4+00	342° 20' 00"
Red Beacon near Sta. A-4+00.0.	343° 47' 20"

Description of Station I

Con. mon. 0.2' above H.W.L., 0.3' above ground, 4' in front of H.W.L., 13' S.E. from water fence, 14.3' W. of 4" sycamore, 9' N. of 10" maple, 11' N of 14" poplar

Angles observed to the right:-

Station H	N.30° 54' W.- 0° 00' 00"—925.8' reel
Red Beacon near Sta. A-25+20.	42° 20' 12"
Station A-17+00	66° 50' 00"
" A-4+00	146° 30' 00"
Red Beacon near Sta. A-4+00.	148° 34' 35"

Description of Station K

Con. mon. near H.W.L. 0.6' above ground, 1.5' above M.L.W., 53' N.W. and upstream from twin sycamore, 13.5' N.W. of 4" locust, 18.3' N.E. of 5" mulberry tree.

Angles observed to the right:-

Cedar Hub Station	0° 00' 00"
Black Beacon near Sta. C-32+00	12° 30' 00"
Red Beacon near Sta. A-4+00.	202° 24' 28"

U.S. Engineer Office,
Washington, D.C.

Approved, December 8, 1913.

W. C. Langfitt
Col. Corps of Engineers, U.S. Army.

OCCOQUAN CREEK
VIRGINIA
SECTION - 2

Surveyed in Compliance with the Requirements of Rivers and Harbors Act of March 4, 1913.
August 25 to Sept. 13, 1913.

SCALE OF FEET
100 0 500 1000

NOTES

Character of bottom within channel lines to 9 ft depth:-

In Section 2-Mud, except between Sta. A-21 and Sta 108 which is gravel with some sand.

In Section 1-Mud, except between Sta. C-21 and Sta C-30 which is sand and gravel.

Concrete monuments (abbreviated con. mon.) used in this locality are enclosed by 8" terra cotta pipe with ¼" brass pipe center point.

Soundings in heavy inclined figures are from U.S. C.&G.S. Hydrographic Sheet #2714, Dec., 1904.

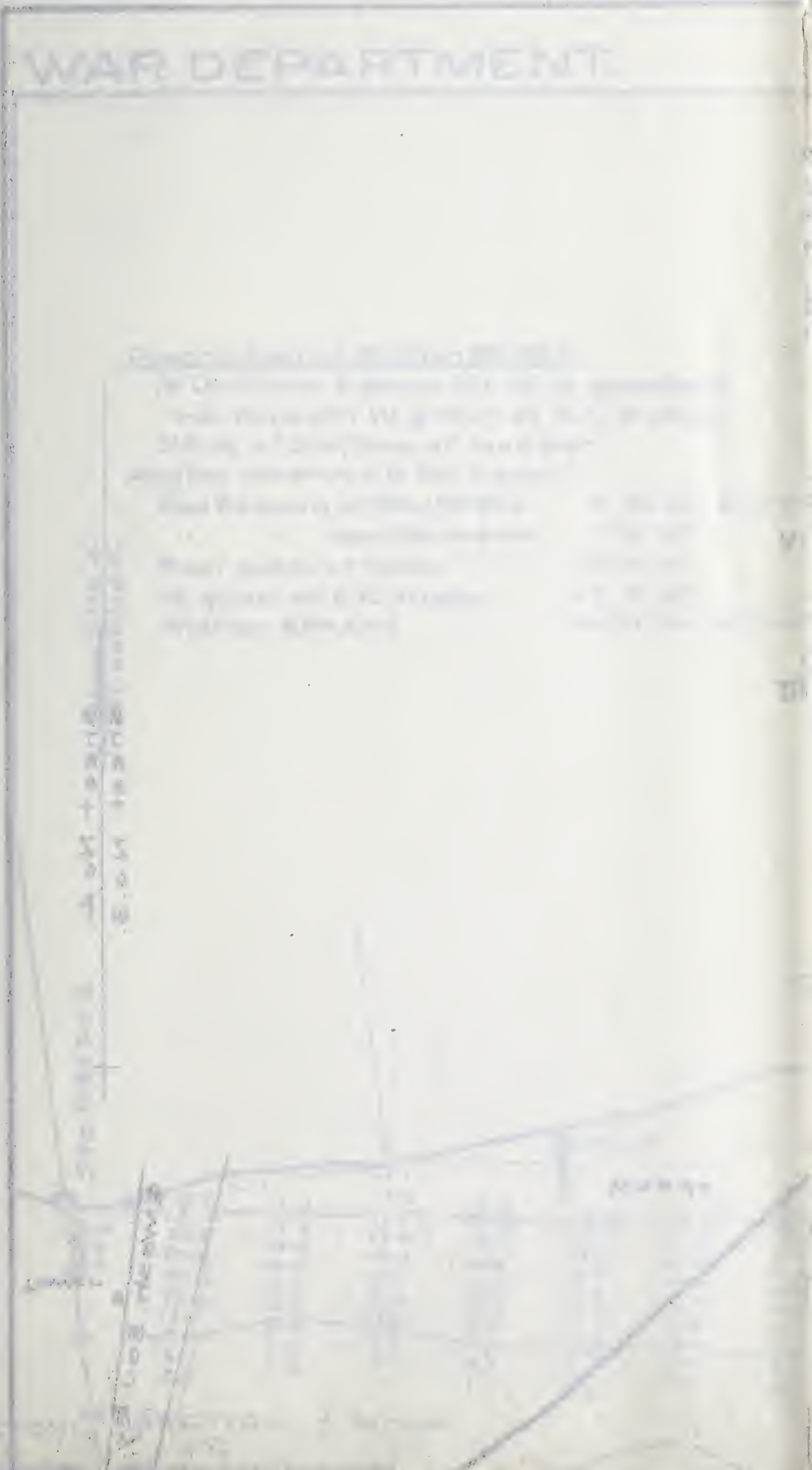
For Wind Chart ... see Sheet No 1.
" General Map . " " "
" Triangulation Diagram " " "

Soundings are in feet and tenths and indicate depth at mean low water.

High water shore line	▬
Marsh line	┈
Channel lines	═
9 Foot contour	─·─
Concrete monuments	✦
Mean range of tide	1.8

Bearings are observed magnetic 1913.

WAR DEPARTMENT



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WAR DEPARTMENT.

CORPS OF ENGINEERS, U.S. ARMY.

SHEET No. 4.
OF 4 SHEETS

Description of Station 0+00·0

Con. mon. 4' above M.L.W., 0·3' above ground, 1' back of H.W.L., 4' N.E. of 6" sycamore, 9' N of 6" birch.

Angles observed to the right:-

Station 27+99 0	0° 00' 00"-S.40° 00' E.
Chimney of cottage	30° 22' 30"
Cupola of barn	47° 20' 30"
Station -1+30	108° 32' 00"-411·3'-reel
Church spire	111° 49' 00"
W Chimney, Janneys house	139° 02' 00"
Watch house crusher bldg	348° 57' 00"

Description of Station 27+99 0

Con. mon. 3' above M.L.W 0·2' above ground, 2' back of H.W.L., 13 5' S W of 14" elm, 11' W. of 12" sycamore

Angles observed to the right:-

Station 48+47·9	0° 00' 00"-S4° 30' W
Chimney of cottage	82° 34' 00"
Cupola of barn	100° 29' 00"
W. chimney, Janney's house	126° 59' 30"
Station 0+00	138° 01' 30"-N 40° 00' W.
Watch house, crusher bldg	144° 56' 00"

Description of Station 68+44·3

Con. mon 5' above M L W, 0 6' above ground, 3' back of H W L., 10' W. and down hill from 3' gnarled chestnut

Angles observed to the right:-

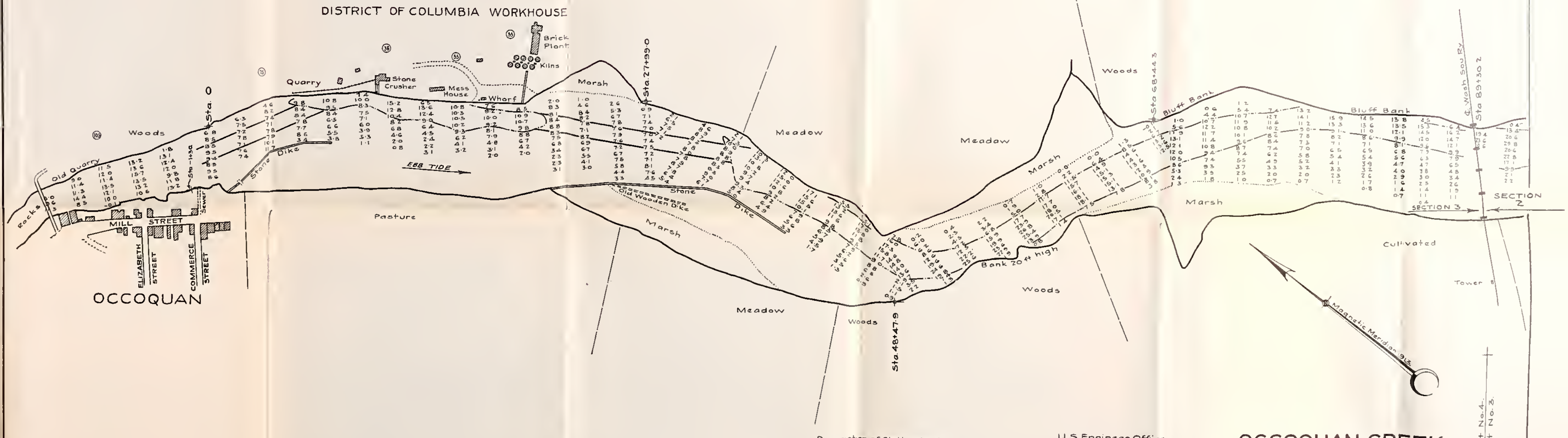
Station 89+30·2	0° 00' 00"-S. 36° 00' E.
Center of roof R R signal tower	23° 56' 00"
Center W chimney, dwelling	40° 01' 00"
Station 48+47·9	142° 42' 00"-N 73° 00' W.
Center of roof, dwelling	147° 07' 00"

Description of Station 89+30 2

½" Drill hole, 5' above, M L W, in soapstone rock, beneath W girder of R R bridge, 3' S.W of S W face of land pier

Angles observed to the right:-

Red Beacon at Sta 112+80 2	0° 00' 00"-S 33° 00' E.
" " near Sta. A-4+00	7° 47' 00"
East gable of house	70° 12' 30"
W girder of R R bridge	77° 10' 00"
Sta 68+44 3	175° 31' 30"-N 38° 00' W.



Description of Station 48+47·9

Con mon. 9' above M.L.W, 0·7' above ground, 10' W. of 12" elm, 10 5' S. of gnarled double 12" elm

Angles observed to the right:-

Station 68+44·3	0° 00' 00"-S 72° 30' E.
Smoke stack, crusher bldg	239° 21' 30"
Metal smoke stack	253° 29' 00"
Station 27+99·0	254° 36' 30"-N 2° 00' E.

U.S Engineer Office,
Washington, D.C.

Approved, December 8, 1913.

W. Craighill.

Col. Corps of Engineers, U.S. Army.

OCCOQUAN CREEK
VIRGINIA
SECTION-3

Surveyed in Compliance with the Requirements of Rivers and Harbors Act of March 4, 1913.
August 25 to Sept. 13, 1913.

SCALE OF FEET
100 0 500 1000

NOTES:

Concrete monuments (abbreviated con. mon.) used in this locality are enclosed by 8" terra cotta pipe with ¼" brass pipe center point
For Wind Chart see sheet No 1.
" General Map " " " "
Character of bottom within channel lines in Section 3 to 9 ft depth - Sand with some gravel.

Soundings are in feet and tenths and indicate depth at mean low water.

High water shore line	—
Marsh line	⋯⋯
Channel lines	═
Concrete monuments	✛
Bearing are observed magnetic	1913
Mean range of tide	1·8'
9 Foot contour	–·–
Approximate elevations above M.L.W.	(73)